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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/484,316	01/18/2000	Goro Asahi	5000-4723	9561

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EXAMINER

SENI, BEHROOZ M

ART UNIT PAPER NUMBER

2621

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/484,316	Applicant(s) ASAHI ET AL.	
	Examiner Behrooz Senfi	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 6/8/2006 have been fully considered but they are not persuasive.

Response to remarks:

Applicant asserts (page 8, interview summary) that, the examiner agreed that amending claims 1, 14 and 19 to include "while a driver operates a steering wheel" indeed overcomes the Shimizu et al reference. Examiner respectfully disagrees.

As stated in the interview summary, dated 7 June 2006, *examiner appreciates applicant's explanation in regards to newly added limitations "while a driver operates a steering wheel", and would consider that after receiving the official amendment.*

However, the limitations "while a driver operates a steering wheel" as newly added to the preamble of independent claims 1, 14 and 19, and not in the body of the claims, would not consider patentably significant.

In addition; after consideration of the newly added limitations "*while a driver operates a steering wheel*" with respect to the prior art of the record Shimizu et al (US 6,275,754); it is noted that the prior art of the records (Shimizu, col. 6, lines 23 – 24) in fact teaches the above subject matter as newly added.

Applicant asserts (page 9, 14 - 15) that Shimizu et al are silent as to a steering system wherein the vehicle is "driven in reverse while a driver operates a steering wheel."

In response; the limitations “while a driver operates a steering wheel” as newly added to the preamble of independent claims 1, 14 and 19, would not consider patentably significant. Since, it is not cited in the body of the claims.

In addition; it is noted that Shimizu (i.e. col. 6, lines 23 – 24) in fact teaches the above subject matter as claimed.

Applicant asserts (page 10, lines 1 - 4) that Shimizu do not disclose; a first indication, wherein the first indication is a fixed reference guide displaying vehicle width projecting behind the vehicle, which is simultaneously displayed, i.e. superimposed, with the second indication while the vehicle is being driven in reverse. Examiner respectfully disagrees.

Examiner respect fully disagrees: Shimizu (i.e. fig. 6 A – C) shows the first indication and the second indication, which are simultaneously displayed on the display screen (11).

Applicant asserts (page 10, lines 22 - 24) that Shimizu et al. fails to disclose; a second indication that continuously changes when backing to reflect the current predicted path of the vehicle based on the angle of the wheels at that point in time.

In response; examiner respectfully indicates that the claim language does not reflect applicant's arguments in regards to the above subject matter.

Applicant asserts (claim 14, page 11, lines 8 - 14) that Shimizu et al fail to disclose, however, a system whereby parallel parking is completed by moving the vehicle while the driver is operating the steering wheel so as to cause a marker to coincide with the corner of a parking space as displayed on the monitor, wherein upon

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the marker matching the corner of the parking space, the wheel are turned to their maximum steering angle.

In response; examiner respectfully indicates that the claim language does not reflect applicant's arguments in regards to the above subject matter.

Applicant asserts (page 13, lines 11 - 12) that Franke et al. are silent as to a method for steering a vehicle in reverse.

In response, as for the above subject matter, examiner lies on Shimizu et al, which uses cameras in the back and around/side of the vehicle and control section for controlling the position of the vehicle in reverse course and on the basis of this data control the steering of the vehicle (i.e. figs. 3A – 3C, and television camera S6, col. 10, lines 28 and controller 22, stage display 11, col. 5, lines 30 – 36).

In view of the above, claims 1 – 21 is finally rejected for the same reason as set forth in the last office action. The rejections are being restated for applicant convenience.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 1 – 18 and 20 – 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al (US 6,275,754) in view of Schofield et al (US 5,949,331).

Regarding claim 1, Shimizu '754 teaches, an apparatus for aiding steering when a vehicle is being driven in reverse while a driver operates a steering wheel, the moving direction of the vehicle being determined in response to the angle of steered wheels (figs. 3A – 3C, col. 6, lines 23 – 24), comprising: a camera for capturing an image of an area behind the vehicle (i.e. fig. 1, television cameras S6, col. 10, lines 28), a monitor for displaying the image captured by the camera (fig. 1, stage display unit 11, col. 5, lines 34 - 36), a detector for detecting the angle of the steered wheels (aiding the steering wheels of the vehicle, would necessitate the detection of the steering angle, fig. 7, col. 4, lines 57 - 58), a display control unit (fig. 1, controller 22, controls the aiding steering based on the receive signals from the steering angles detection, and also controls the operation stage of display 11, col. 5, lines 30 - 36) for displaying a guide marking for aiding steering, the marking and the image being simultaneously displayed on the monitor when the vehicle is being driven in reverse (figs. 4 – 6 and 10 – 18, shows the guide marking, which is used to assist and/or aid steering for parking the vehicle, thus is being displayed on the display 11), and as for, marking provides a driver with at least first and second indications, see (figs. 10, 15 and 17, the first indication is the path between, the first position to the second position (Po to Qo) and the second indication is the path between, the second position to the last or final position (Qo to Ro), wherein the first indication continuously showing a path of the vehicle

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corresponding to the angle of zero degrees of the steered wheels regardless of the current angle of the steered wheels (looking at fig. 17, first indication path, which is between the center points of the vehicle in the first/original position and the vehicle in the second position, which is parallel to the contact plane, therefore, the path corresponds to the angle of zero degrees regardless of the angle of the steered wheels, since the path is sort of a parallel/straight line) and wherein the second indication is simultaneously displayed with the first indication and shows a prospective path of the vehicle corresponding to the current angle of the steered wheels detected by the detector (figs. 13 – 18, shows first and second indication on the display, and the second indication shows a prospective path of the vehicle corresponding to the detected angle of the steered wheels), furthermore it is noted that, the width of the vehicle, which is an essential element in assisting or guiding a vehicle for parking purpose, is being considered in automatic parking assistance system of Shimizu (i.e. figs. 12 and 16).

Shimizu patent is silent in regards to explicitly mention, a fixed reference guide displaying vehicle width projecting behind the vehicle.

However such features are well known and used in the prior art of the record as evidenced by Schofield (fig. 6, 70A and 70B, col. 10, lines 28 – 55) where teaches a display having image enhancements, which includes graphic overlay 70a and 70b, that will be displayed only when the vehicle is in reverse gear position for guiding the vehicle.

Taking the combined teaching of Shimizu and Schofield as a whole, it would have been obvious to one skilled in the art at the time of the invention was made to

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enhance the imaging system of Shimizu by using fixed graphic overlays to illustrate/display the anticipated path of movement of vehicle in reverse position as taught by Schofield (fig. 6, 70A and 70B, col. 10, lines 28 – 55).

Regarding claim 2, combination of Shimizu and Schofield teaches, display control unit calculates the prospective path assuming that the vehicle is moved in reverse on the basis of information from the detector (as discussed with respect to claim 1, controller 22, receives the signals/information from the detector and based on those information displays/determines the guide path, figs. 4 – 6 of Shimizu) and the second indication of the marking represents the width of the vehicle and extends behind the rear end of the vehicle by a predetermined distance (figs. 4 – 6, marking represents the width of the vehicle and extends behind the rear end of the vehicle of Shimizu).

Regarding claim 3, combination of Shimizu and Schofield teaches, second indication of the marking includes a pair of the marks that extends behind the rear end of the vehicle along the prospective path and are spaced apart from each other by the width of the vehicle (as discussed with respect to claim 2, figs 4 – 5, shows marking includes a pair of the marks that extends behind the rear end of the vehicle along the prospective path and are spaced apart from each other by the width of the vehicle of Shimizu).

Regarding claim 4, combination of Shimizu and Schofield teaches, the marking includes a pair of the marks that extends behind the rear end of the vehicle along the prospective path and are spaced apart from each other by the width of the vehicle, as discussed with respect to claim3, would cover the limitations, second indication of the

marking includes an indication defined by two points that are spaced apart approximately by the width of the vehicle, as claimed.

Regarding claim 5, combination of Shimizu and Schofield teaches, the second indication of the marking includes an end mark that approximately indicates the width of the vehicle in appearance at an apparent predetermined distance behind the rear end of the vehicle on the prospective path and the mark extending from the end mark toward the rear end of the vehicle, wherein the side marks are spaced apart approximately by the apparent width of the vehicle (figs. 4 – 6 of Shimizu shows the end mark and the side marking).

Regarding claim 6, combination of Shimizu and Schofield teaches, second indication of the marking further includes two intermediate marks appearing between the end mark and the rear end of the vehicle, reads on Shimizu marking path.

Regarding claim 7, combination of Shimizu and Schofield teaches, wherein the predetermined distance appears to be approximately the same as the wheelbase of the vehicle (fig. 3, wherein shows the parking spot and the path for parking of Shimizu).

Regarding 8 – 9, combination of Shimizu and Schofield teaches, display control unit calculates the prospective path of the movement of the vehicle based on the positional relationship, as discussed with respect to Shimizu patent in claim 1.

It is noted that combination of Shimizu and Schofield is silent in regards to particularly show, using polar coordinates for calculation of prospective path and using radial line for determining the end mark on the second indication of the marking.

Examiner takes Official Notice to note that, calculating a prospective path using a polar

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coordinates are well known and used in the conventional art, particularly for non-linear, circular dynamics and also in 3-D environment. In view of the above, it would have been obvious to one skilled in the art at the time of the invention was made to use such well known teaching for non-linear calculation.

Regarding claim 10, combination of Shimizu and Schofield teaches, display control unit displaces the indication of the prospective path in the direction of vehicle movement (i.e. figs. 3a – 3b, 15 of Shimizu).

Regarding claims 11 - 12, combination of Shimizu and Schofield teaches, display control unit calculates the prospective path using the information from the detector/sensors and consideration of the vehicle speed, as discussed earlier in the above action. But is silent in regards to determining the steering speed. However such features is an inherent function, which is necessitated by the process of vehicle automatic steering as taught by Shimizu.

Regarding claim 13, combination of Shimizu and Schofield is silent in regards to; guide marking is displayed in color. Examiner takes Official Notice to note that the use of different color for ease of identification and/or tracking and/or as a guidance is notoriously well known and used in the prior art of the, like color coding. Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to implement such teachings as they are so well known in the prior art of the record for ease of identification.

Regarding claim 14, the limitations claimed are substantially similar to claim 1; therefore the grounds for rejecting claim 1 also applies here. Furthermore, for additional

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limitations, displaying marker that is fixed at a predetermined position with respect to monitor for aiding a driver in parking, (figs. 14 – 16 and 18 shows marker P, R and/or Q, that are being displayed on the monitor and are used for aiding the vehicle in parallel parking) and as for moving the vehicle in reverse so as to cause the marker to coincide with a corner of a parking space displayed on the monitor followed by backing while keeping the steered wheels turned at their maximum angle, reads on (the graph on the bottom of fig. 7, where shows the traveling distance with respect to the steering angle of the wheel that is being controlled by the controller 22, and figs. 14 – 16 and 18, shows the vehicle moving in reverse, which essentially cause the marker to coincide with a corner of a parking space).

Regarding claim 15, the limitations claimed have been analyzed and rejected with respect to claims 1, 3 and 5 above.

Regarding claims 16 – 17, combination of Shimizu and Schofield teaches, marker includes a first marker used when performing parallel parking to the left and second marker used when performing parallel parking to the right (in claim 16) and first marker and second marker are selectively displayed depending on the left or right parking operation (in claim 17), reads on (four step options for parking, as shown in fig. 1 of Shimizu).

Regarding claim 18, combination of Shimizu and Schofield teaches, detection of Obstacle existent, control unit displays the presence of the obstacle on the monitor (i.e. figs 4 – 5, col. 1, lines 27+ of Shimizu).

Regarding claims 20 – 21, combination of Shimizu and Schofield teaches, correcting means to correct the prospective path, wherein the display control unit generates the second indication based on the corrected prospective path (in claim 20), and correction means corrects the prospective path according to the current steering speed of the steered wheels (i.e. figs. 11 and 13, col. 3, lines 1 – 26 and col. 6, lines 25 – 35 of Shimizu).

4. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al (US 6,275,754) in view of Schofield et al (US 5,949,331) further in view of Franke et al. (US 5,485,378).

Regarding claim 19, the limitations claimed are the methods corresponding to the apparatus for aiding steering when a vehicle is being driven in reverse of claim 1, which have been analyzed and rejected with respect to claim 1 above.

Furthermore, combination of Shimizu and Schofield is silent in regards to the additional limitation of, vehicle proceed on a route when the vehicle is driven so that the second indication is positioned at a center of the route.

However, such features are well known and used in the prior art of the record, as evidenced by Franke (i.e. fig. 2, col. 2, lines 11+) where teaches steering and control the course of a vehicle with respect to lane boundary (center strip). Since Shimizu '754 uses the same cameras in the back and around/side of the vehicle, which actually shows on image of a way behind the vehicle and control section for controlling the position of the vehicle in reverse course (e.g. with video cameras) and on the basis of this data control the steering of the vehicle.

Therefore, taking the combined teaching of Shimizu, Schofield and Franke as a whole, it would have been obvious to modify the steering system of Shimizu as taught by Franke, for the purpose of maintaining a controlled course (distance) with respect to the center strip of the route behind the vehicle, as suggested by Franke (col. 2, lines 11 - 18).

. Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Behrooz Senfi** whose telephone number is **(571) 272-7339**.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mehrdad Dastouri** can be reached on **(571) 272-7418**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

Or faxed to:

(571) 273-8300

Hand-delivered responses should be brought to Randolph Building, 401 Dulany Street, Alexandria, Va. 22314.

Any inquiry of a general nature or relative to the status of the application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is **(571) 272-6000**.

B. M. S.

7/7/2006

Mehrdad Dastouri
MEHRDAD DASTOURI
SUPERVISORY PATENT EXAMINER
TC 2600